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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,295	02/27/2004	Chyi-Shan Wang	UVD 0307 IA/40815.411	7623

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EXAMINER

KOPEC, MARK T

ART UNIT

PAPER NUMBER

1751

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/789,295

Applicant(s)

WANG ET AL.

Examiner

Mark Kopec

Art Unit

1751

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-11,18,19 and 21-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-11,18,19 and 21-29 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

Art Unit: 1751

This application is a CIP of S.N. 10/698,218 (filed 10/31/03, now U.S. 7,029,603), which application is a DIV of S.N. 09/932,169 (filed 08/17/01, now U.S. 6,680,016).

The preliminary amendment filed 05/09/05 is entered.

Claims 1-4, 6-11, 18, 19, and 21-29 are pending.

The examiner has determined the instant claims are accorded a priority date of **02/27/04** (the filing date of the instant application).

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Art Unit: 1751

Claims 1-4, 6-11, 18, 19, and 21-29 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. 6,680,016. Although the conflicting claims are not identical, they are not patentably distinct from each other because both the instant claims and the claims of 6,680,016 are drawn to methods of making a nanocomposite. The instant claims fully encompass the issued claims and are merely broader in scope with respect to the required "nanomaterials".

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1751

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 1751

Claims 1, 3, 4, 6, 9-11, 18, and 21-28 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Knudson, Jr et al (2002/0165305).

Knudson discloses nanocomposites produced by mixing dispersions of polymers and dispersions of clay minerals. After mixing, the dispersions may be destabilized with the addition of appropriate compounds (Abstract). In an embodiment, the polymeric dispersion may be formulated by mixing a combination of a liquid carrier, a surfactant, and a polymer. In an embodiment, a clay mineral dispersion may be produced by mixing a clay mineral with a liquid carrier such that the clay mineral is dispersed in the liquid carrier. A surfactant may be added when preparing a dispersion of a clay mineral in the liquid carrier. The two dispersions may be subsequently mixed together to produce a dispersion mixture of the polymer and the clay mineral. The dispersion mixture may then be flocculated by addition of a flocculating agent (0008). The liquid carrier may be either water, an organic solvent, or mixtures thereof. Polymers that may be used include, but are not limited to, the following examples: polyester, polyurethane, polyvinyl chloride, styrene-butadiene, acrylic rubber, chlorosulfonated polyethylene rubber, fluoroelastomer, polyisoprene, polycarbonate resin,

Art Unit: 1751

polyamide resin, polyolefin resin, thermoplastic resin or mixtures thereof (0015). In one embodiment, the clay mineral dispersion is added to the polymer dispersion to form a clay-polymer dispersion. Alternatively, the polymer dispersion may be added to the clay dispersion to form the clay-polymer dispersion (0055). The polymer and clay sizes may range from about 0.05 microns to about 5.0 microns. This particle size range may produce a colloidal dispersion. Polymer and clay dispersions may be, but are not limited to, colloidal dispersions (0057). In some embodiments, a surfactant may be added to the polymer dispersion to aid in dispersion of the polymer. Surfactants that may be used include amphoteric, anionic, cationic, and non-ionic. A surfactant may be added in an amount from about 1% to about 20% by weight of polymer (0060). The reference specifically or inherently meets each of the claimed limitations.

The reference is anticipatory.

In the event that any minor modifications are necessary to meet the claimed limitations, such as selection of a particular surfactant or coupling agent, such modifications are well within the purview of the skilled artisan.

Claims 1-4, 6-11, 18, 19, and 21-29 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35

Art Unit: 1751

U.S.C. 103(a) as obvious over either Carroll et al (2002/0161101) or Sun et al (2003/001141).

Carroll discloses compositions prepared by combining nanomaterials with a halide-containing polymer, thereby forming a combined polymer matrix having dispersed nanomaterials within the matrix. The nanomaterials may be carbon-based nanotubes, in some applications. A halide-containing monomer is combined with nanotubes, and then polymerized in some compositions. In other applications, a halide-containing polymer is solution processed with nanotubes to form useful compositions in the invention (Abstract). Nanomaterials can be solution mixed with dissolved pre-formed polymer, or Nanomaterials can be mixed via multi-phase processes involving both pre-formed polymer and/or insitu polymerization such as, aqueous dispersion or emulsion polymerization with or without the addition of surfactants (0040-0044). Halogenated polymers that may be employed include: halosilicones, halopolyurethanes, halopolyphosphazenes, halopolycarbonates, haloepoxy resins, halopolyamides, halopolyimides, halocyanurate resins, halopolystyrenics, halogenated polyolefins, halopolycyclohexane, halogenated ethylene-propylene-dienemonomer (EPDM) resins, halogenated acrylics, and halogenated polyacrylonitriles (0058). The

Art Unit: 1751

reference specifically or inherently meets each of the claimed limitations.

Sun discloses carbon nanotube solution can be readily diluted with other organic solvents, such as acetone, toluene and methanol. SEM after solvent evaporation clearly shows that nanotubes are still present after being subjected to this procedure (Abstract). It is another object of the present invention to make solutions of carbon nanotubes using a class of small organic molecules as dissolution or dispersing agents. It is another object of the present invention to incorporate carbon nanotubes with organic polymers to make nanocomposites (0010-0011). Sun specifically teaches the dissolution process can be facilitated significantly by applying an exogenous energy source to a mixture of carbon nanotubes and the electron donor compounds. The energy sources can include heating, mechanical stirring, ultra-sonification, microwave irradiation, or any combination thereof. The resulting solution can be mixed with polymers, for example, polyolefins such as polyethylene, polyvinyl chloride, polytetrafluoroethylene, polyacrylonitrile, polymethyl methacrylate, polyvinyl acetate, polyester, polystyrene, polyamide, and the like, to form nanocomposites. Alternatively, the solutions of nanotubes can be coated onto a substrate and the solvent removed by conventional means to form

Art Unit: 1751

a coating or layer of nanotubes (0036). The reference additionally teaches the claimed solvents (0052), and specifically or inherently meets each of the claimed limitations.

The references are anticipatory.

In the event that any minor modifications are necessary to meet the claimed limitations, such as selection of a particular surfactant or coupling agent, such modifications are well within the purview of the skilled artisan.

In view of the foregoing, the above claims have failed to patentably distinguish over the applied art.

The remaining references listed on forms 892 and 1449 have been reviewed by the examiner and are considered to be cumulative to or less material than the prior art references relied upon in the rejection above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Kopec whose telephone number is (571) 272-1319. The examiner can normally be reached on Monday - Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas McGinty can be reached on (571) 272-1029. The fax phone number for the

Art Unit: 1751

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Mark Kopec
Primary Examiner
Art Unit 1751

MK
September 16, 2006